

TBHQ



HISTORY

Approved as a food preservative for use in the U.S. in 1972, TBHQ has predominantly been employed for the stabilization and preservation of fats and foods with high fat content, owing to its radical-scavenging activity.

PRODUCTION

The primary advantage of TBHQ is extending storage life. It is commonly used in margarine, shortenings, butter and fat-rich baked goods.

TERT-BUTYLHYDROQUINONE

Tert-Butylhydroquinone (TBHQ), molecular formula $C_{10}H_{14}O_2$, is a synthetic aromatic organic compound. It is produced as white or slightly yellow fine crystals; used as a food additive, its E number is E319.

TBHQ is a type of phenol, a derivative of hydroquinone, substituted with a tert-butyl group. In foods, TBHQ is used as a preservative for unsaturated vegetable oils and many edible animal fats. It is effective at low levels, does not cause discoloration even in the presence of iron, and does not change flavor or odor of the material to which it is added. It can be combined with other preservatives, such as BHA.

TBHQ has been commonly used as a synthetic food antioxidant to prevent oils and fats from oxidative deterioration and rancidity due to its potent anti-lipid peroxidation activity. It is a phenolic compound that removes free radicals formed during autoxidation of unsaturated lipids.

APPLICATIONS

In bulk oils, TBHQ can be used:

- as a multi-purpose synthetic food antioxidant
- in many different applications
- for low cost-in-use
- with no organoleptic impact

TBHQ can be combined with:

- other synthetics (BHA, BHT, Propyl gallate)
- citric acid

Format

- liquid, oil dispersible

Sources:

<https://en.wikipedia.org/wiki/Tert-Butylhydroquinone>
<https://pubmed.ncbi.nlm.nih.gov/17266519/>
<https://bakerpedia.com/ingredients/artificial-preservatives/>
<https://academic.oup.com/jac/article/68/6/1297/763983>

